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09/558,770	04/26/2000	Martin W. Allen	SP00-118	1532

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EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/558,770

Applicant(s)

ALLEN ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 12-14, 22, 23 and 100-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12-14, 22, 23 and 100-102 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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In view of the Appeal Brief filed on 22 August 2005, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 12-14, 22, 23 and 100-102 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 requires (last line) "the hole to close uniformly and symmetrically." It is deemed that such is "a word of degree" which is imprecise unless a definition or guideline has been set forth in the specification or the term is otherwise well known in the art. See Seattle Box Co. v. Industrial Crating and Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984). However, there is no evidence in application (nor is Examiner aware of any evidence) that the words "uniformly" and "symmetrically" have any art-recognized meaning. Nor is there any guidance or definition in the specification that would allow one of ordinary skill in the art to understand the meaning of the words.

Furthermore, claim 3, line 6, refers to "sufficiently symmetric" – which suggests that the adverb form "symmetrically" might reasonably also be interpreted as "sufficiently symmetrically" (see also claim 22). However, when Examiner indicated that the Maurer collapse was sufficiently symmetrical and uniform for Maurer's purpose – applicant disagreed. The disagreement suggests that applicant believes that there is some standard to the amount of uniformity and symmetry. However Examiner cannot ascertain what that standard would be.

In other words, it is unclear if the symmetry and uniformity in the preform requires by claim 1 is relative (such as in claim 1) - or if it is absolute as determined by at least an electron microscope (see Brief of 22 August 2005, page 11, 3rd to last line).

Still further, claim 23 might indicate that things can have a 25% asymmetry and still possess "radial symmetry": this does not seem to be reasonable. Compare to French 4154591 figure 2B, which shows a "radially distorted" (see Example 1 section of

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French) tube – the minor axis is about 25% less than the major axis. One of ordinary skill would not reasonably believe that a radially distorted tube such as French could be considered to have radial symmetry as claim 23 suggest.

Even further, looking to page 9, lines 25-29 of the appeal brief – which indicates that if the diameter changes, then the fiber is not symmetric. This seems to suggest that a regular cone is lacks symmetry. However, under conventional usage, cones have both axial and planar (i.e. bi-lateral) symmetry. Given all of this, it is deemed that one of ordinary skill would be unable to determine what is covered by Applicant's claims.

Claim 12, line 5: there is no antecedent basis for "the soot core blank".

Claim 13 is not understood because it requires redrawing. However there is no mention of any drawing of the core blank. It is unclear if re-drawing necessarily requires a previous drawing step – and if so does it require it to be part of claim 12 or just claim 13.

Claim 23 is unclear what is meant by having a radial symmetry at a distance (0.1 micron) as what is meant by a symmetry having a distance (0.025 micron). Objects have symmetry or they don't – symmetry does not have a distance. It doesn't make sense – because 0 is "less than .025 microns" – and "0 symmetry" would suggest complete asymmetry.

Claim Objections

Claims 13-14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

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Claim 12 first requires a step of forming of the intermediate glass object, followed by steps of removing the mandrel and heating the (sic, a?) soot blank to form a glass core blank. Claim 13 depends from claim 12 and requires redrawing the glass blank, and then forming the intermediate glass object. In other words, claim 13 requires making the object from the blank, but claim 12 requires making the blank from the object. These are two mutually exclusive things. Thus claim 13 does not further limit claim 12, it takes it to a completely new (and mutually exclusive) scope.

Claims 13-14 are not treated further on their merits.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 22 –23 and 100-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer REISSUE 28,028.

This rejection is the same as was made in the final rejection – although re-written to more clearly set forth the basis for each limitation.

Claim 1: A method of manufacturing an optical fiber,

See the Title of the Maurer patent.

**comprising the steps of:
providing a cylindrical intermediate glass object for use in the manufacture of optical fiber, the glass object having an wall defining a cylindrical hole, the center of the hole positioned along the centerline of the glass object;**

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Figures 1 and 2 of the Maurer patent show the cylindrical object 10 which has a wall 14 and cylindrical hole 18 as claimed. Col. 4, lines 53-54 disclose that the object is glass

heating the glass object to a temperature sufficient to reduce the outside diameter of the glass object;

Figure 1 shows the heating of the object by furnace 16 to reduce the diameter to that of fiber 26. See col. 6, lines 25-38.

applying a pressure of greater than or equal to 500 Torr to the hole; and

This is not taught by Maurer – see below.

reducing the outside diameter of the glass object by at least 1/3

The diameter is reduced as claimed by about 0.995 which is greater than 1/3. See col. 8, lines 25-42 and col. 7, line 70. $1 \frac{1}{4} \text{ inch} = 31,750 \text{ microns}$. Final fiber size 150 microns. $31,600/31,750 = 0.995$.

**and under conditions
sufficient to cause the hole to close uniformly and symmetrically.**

This is deemed that the hole closes sufficiently uniformly and symmetrically for Maurer – because it is presumed that Maurer's process is enabled to produce a useable optical fiber as disclosed.

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Alternatively: It would have been obvious to do the drawing as uniformly and as symmetrically as possible because variations in the core diameter might significantly effect the transmission characteristics as Maurer teaches (col. 3, lines 30-32). See also col. 6, lines 13-15: uniformity is important in the intermediate stage.

As indicated above, Maurer is silent as to whether there is a pressure or vacuum in the hole 18. It would have been obvious to perform the process at a pressure of at least atmospheric (i.e. 750 torr), so that one does not have to bother with a vacuum system. Since Maurer does not teach the use of a vacuum, one would immediately and automatically assume no vacuum is used or necessary.

Moreover, col. 5, lines 65-68 of Maurer teaches a prior deposition step which can use a vacuum. One would assume that since Maurer decided to mention the use of a vacuum during the deposition step, and did NOT mention any other use of a vacuum – that such was the sole use of a vacuum.

Claim 2 is clearly met. It requires that the starting object is an optical fiber preform and that the collapsing coincides with the drawing of the fiber. These are shown in figures 1 and 2.

Claim 3: the fiber is single mode, HE₁₁ (sentence spanning cols. 6-7) Maurer is also concerned with minimizing dispersion (col. 3, lines 63-64). It would have been obvious to make the dispersion as low as possible – with no new or unexpected results. Alternatively, since Maurer does what Applicant does, one would expect the same

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results. The same applies to claims 4-5. But claims 4-5 also refers to no more than 3 spins per meter. Maurer shows no spinning. It would have been obvious to not have spinning because no spinning is disclosed.

Claim 6: Claim 6 requires one end of the hole be plugged. The scope of "plugged" is not indicated in the specification. Then turning to the specification – no explicit definition is indicated. Then turning to the specification for specific embodiments: it is noted that from instant figure 5, plug 66 appears not to be a separate piece that is plugged into the tube, rather it appears to be a heat-sealed section of the inner glass tube. Examiner notes this as an indication that Applicant does not use the term "plug" in any narrow sense. Maurer does not teach any plugging, however, col. 4, lines 71-72 and col. 7, lines 34-37 disclose using pure materials. IT would have been obvious to plug or cap or lid the tube so as to prevent any material from getting into the tube – whenever the tube is not being worked on. It is deemed that any capping, plugging, etc. to keep out contaminants reads on the instant claims.

Claim 22: see figure 3: it would have been obvious to maintain the circular symmetry shown in figure 3, because there is no reason to change it, and because Maurer teaches variations are undesirable (see above).

Claim 23: it would have been obvious to have the fibers as symmetrical as possible, because variations are undesirable.

Claim 100 is clearly met with atmospheric pressure.

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Claims 101-102: It is deemed that preventing a change in diameter will result in very small change in dimension. It would have been obvious to make keep the change as small as possible. Furthermore, as per col. 7, lines 14-16, there is no layer between 0.08 and 0.15 microns. It is just a solid core within that range. The claim is only directed to the invention that has a layer there and does not limit a method which lacks a layer there. Alternatively, if there were layers, it would have been obvious to expect that one would achieve the lowest amount of variation – so as to make the fiber as circular as possible.

Claims 1-6, 22 –23 and 100-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer REISSUE 28,028 in view of French 4154591 or Glessner 4636235.

See above how Maurer is applied. As indicated above, Maurer does not teach the pressure. French or Glessner are cited to show that applicant's discover is well known: A pressure that is too low causes a non-even collapse. The secondary references also show that it is known that the internal pressure during collapse is a result-effective variable. See French Abstract, col. 2, lines 46-59, and col. 3, lines 24-29. See Glessner: col. 2, lines 25-32 and the paragraph spanning cols. 3-4.

It would have been obvious to have the Maurer pressure at atmospheric (i.e. 760 Torr) or above – so as to prevent uneven collapse as taught by French and Glessner.

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Alternatively, it would have been obvious to perform routine experimentation to determine the optimal pressure during the Maurer collapse, since such is a result effective variable and since it is obvious to optimize known result-effective variables.

For the dependant claims, see previous rejection above also. Additionally for claim 100: French teaches a positive pressure which is even higher than atmospheric.

Claims 1,2, 6, 12, 22, 23, 100-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey 4154592

Claim 1: A method of manufacturing an optical fiber,

See the Title.

**comprising the steps of:
providing a cylindrical intermediate glass object for use in the manufacture of optical fiber, the glass object having an wall defining a cylindrical hole, the center of the hole positioned along the centerline of the glass object;**

See figure 4 and the associated text

heating the glass object to a temperature sufficient to reduce the outside diameter of the glass object;

See figure 4 and the associated text

applying a pressure of greater than or equal to 500 Torr to the hole; and

This is not taught by Bailey— see below.

reducing the outside diameter of the glass object by at least 1/3
The diameter is reduced clearly reduced by more than 1/3rd as shown in figure 4.

**and under conditions
sufficient to cause the hole to close uniformly and symmetrically.**

This is deemed that the hole closes sufficiently uniformly and symmetrically for Bailey's purpose – it is presumed that Bailey's process is enabled to produce a useable optical fiber.

As indicated above, Bailey is silent as to whether there is a pressure or vacuum in the hole. It would have been obvious to perform the process at a pressure of at least atmospheric (i.e. 750 torr), so that one does not have to bother with a vacuum system. Since Bailey does not teach the use of a vacuum, one would immediately and automatically assume no vacuum is used or necessary.

Claim 2 is clearly met.

Claim 6: see col. 3, lines 28-31.

Claim 12: See col. 2, lines 25-41 and the paragraph spanning cols 2-3. Such discloses the forming by using the steps of depositing removing and heating as claimed. As to the result being a core blank – such is deemed to be an intended use limitation.

Claim 22: such is deemed in view to be inherent based on Applicant's admission in the Appeal brief that one can detect such layers with an electron microscope - (see Brief of 22 August 2005, page 11, 3rd to last line)..

Claim 23: it is deemed that since Bailey has a fiber which is circular, around the point that is 0.1 micron off-center, there is essentially no corresponding radial symmetry around that point – thus the symmetry is "0", and "0" is less than 0.25 microns.

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Alternatively, the locus of all points 0.1 micron from the center constitute a perfect circle. Such a perfect circle would have perfect radial symmetry – it is deemed such reads on the claim as much as applicant's invention does.

Claim 100 is clearly met with atmospheric pressure.

Claims 101-102: It is deemed that preventing a change in diameter will result in very small change in dimension. It would have been obvious to make keep the change as small as possible. Furthermore, there is no layer between 0.08 and 0.15 microns. It is just a solid core within that range. The claim is only directed to the invention that has a layer there and does not limit a method which lacks a layer there. Alternatively, if there were layers, it would have been obvious to expect that one would achieve the lowest amount of variation – so as to make the fiber as circular as possible.

Claims 1,2, 6, 12, 22-23 and 100-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey 4154592 in view of French 4154591 or Glessner 4636235.

See above how Bailey is applied. As indicated above, Bailey does not teach the pressure. French or Glessner are cited to show that applicant's discover is well known: A pressure that is too low causes a non-even collapse. The secondary references also show that is known the internal pressure during collapse is a result-effective variable. See French Abstract, col. 2, lines 46-59, and col. 3, lines 24-29. See Glessner: col. 2, lines 25-32 and the paragraph spanning cols. 3-4.

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It would have been obvious to have the Bailey pressure at atmospheric (i.e. 760 Torr) or above – so as to prevent uneven collapse as taught by French and Glessner.

Alternatively, it would have been obvious to perform routine experimentation to determine the optimal pressure during the Bailey collapse, since such is a result effective variable and since it is obvious to optimize known result-effective variables.

For the dependant claims, see above also. Additionally for claim 100, French teaches a positive pressure which is even higher than atmospheric.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Glessner 4636235.

Claim 1: A method of manufacturing an optical fiber,

See the Title.

comprising the steps of:
providing a cylindrical intermediate glass object for use in the manufacture of optical fiber, the glass object having an wall defining a cylindrical hole, the center of the hole positioned along the centerline of the glass object;
See figures 1 and 2 and the associated text

heating the glass object to a temperature sufficient to reduce the outside diameter of the glass object;
See figure 2 and the associated text

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applying a pressure of greater than or equal to 500 Torr to the hole; and

See col. 4, lines 2-3

reducing the outside diameter of the glass object by at least $1/3$

The diameter is reduced clearly reduced by more than $1/3^{\text{rd}}$ as shown in figure 2.

and under conditions

sufficient to cause the hole to close uniformly and symmetrically.

See col. 2, lines 24-33.

Examiner notes that Glessner collapsing step could be thought of as a step which has two sub-steps: a partial collapse and a final collapse. Only the first sub-step has the required pressure. The second sub-step need not have the same pressure. There is nothing in the claim which precludes a lower pressure during part of the collapse – such as what Glessner has.

It appears that the claim is open to having a part of the collapsing be at It is further noted that during the Appeal Conference it was determined that Examiner erred in the final rejection when stating: "...that there is no order to the steps" of claim 1 because claims are interpreted in light of the specification – which discloses that the pressure is applied along with the collapsing step.

With either of the above interpretations, if applicant disagrees with the above interpretation(s), applicant is free to amend the claims to change the scope of the claims. Alternatively, Applicant can also point out what the correct interpretation of the claims is – and preferably why the such would be correct.

Claim 2 is clearly met.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. However the Maurer rejection is maintained. Relevant arguments made in the Appeal Brief are addressed as follows:

It is argued that Maurer does not teach using atmospheric pressure. This is true, but deemed to be irrelevant. It is well understood that patents should not disclose what is conventional, and that includes conducting processes in atmospheric pressure. If Applicant's argument were sufficient basis for granting a patent, then anyone could get a patent on nearly any invention, merely by claiming it is done at atmospheric pressure, or on the planet Earth, or when the sun is shining, etc. The same applies to enablement, one would automatically assume that any process would work at atmospheric pressure, on the planet earth, when the sun was shining, etc. unless there is evidence to the contrary. Applicant merely asserts that no one has ever used a pressure above 500 torr – there is no evidence to support this. Nevertheless, the above rejections now clearly document that Applicant's discovery of using non-vacuums has been previously discovered by others.

As to the arguments that Maurer does not teach collapsing uniformly and symmetrically. Examiner disagrees for the reasons set forth in the rejections.

It is still further argued that Maurer does not mention or suggest a large enough diameter so that the hole completely closes as claimed. Again, Examiner disagrees,

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Maurer has the results as claimed (or such would have been obvious as set forth in the rejection) – therefore the preform had to be large enough to get those results.

It is argued that it would not have been obvious to cap the tube (claim 6) because Maurer does not teach such. This is irrelevant. The rejection clearly sets forth why the claim is obvious – it has no indication that Maurer teaches capping. The relevant question is whether such would have been obvious – not whether Maurer explicitly teaches all of the features.

It is further argued that Maurer's teaching regarding the core diameter has nothing to do with symmetry. This is not convincing. These two things are essentially the same. If the core has a constant diameter, then it possesses radial symmetry – and vice versa. If the core does not have a constant diameter then it does not have radial symmetry – and vice versa.

It is argued that if the fiber first has 125 micron diameter and then has a 140 micron diameter at a further axial location, that such is not the same as maintaining the circular symmetry. Since they are both circles, they are both have circular symmetry – thus symmetry is maintained. Size and symmetry are completely independent from each other. More importantly, the claims do not require maintaining symmetry. It is presumed that since the claims are comprising in nature, the claims are open to having other locations which are not symmetric.

Regarding claim 100 it is argued that Maurer does not teach using a pressure greater than 750 torr. This is true. No relevance of this is pointed out – Examiner

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cannot fathom it being relevant since the rejection clearly points out that Maurer does not teach the pressure.

It is argued that Applicant could not understand the rejection of claims 101-102. To clarify: the claim uses the word "any" (i.e. "any layer"). This reasonably suggests that there may not a be any layer there. Thus the rejection is based on Maurer which does not have any layer there. The claims do not specify any limitations where no layer exists.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700


John Hoffmann

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Primary Examiner
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jmh